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REMARKS

Claims 31-38 were objected to on the grounds that the expression "coil segments" was used inconsistently in parent claim 31. This has been corrected in a manner suggested by the Examiner.

Independent Claims 31 and 37 have been amended to delineate the difference between hot spiral shaped filament, which is still within the forming machine, and the separate plastic spiral coil segments (which are outside of the forming machine, after being cut). This is different from Pfaffle, where the segments are produced from a continuous winding, by spinning the continuous filament into the book while it is still attached to the spool inside the Pfaffle machine.

Claims 31-38 were rejected under Sec. 112, first paragraph, on the grounds that there is insufficient support in the specification for such expressions as "elapsed time", "sufficient to allow said coils segments to cool slowly", etc. While Applicant does not agree with this position taken by the Examiner, claim 31 has been amended to recite that the coil segments are transferred from the coil forming machine to the binding machine "through ambient air at a rate such that said coil segments are cooled by said ambient air to a temperature substantially that of room temperature". Support for this language is found in the first paragraph in column 13 of Applicant's prior US Patent 6,547,502 which forms the specification and drawings in this application. Clearly there is no longer a problem of "undue experimentation" by one skilled in the art.

The Examiner raised a number of other issues with the language in the claims under consideration, so the undersigned has reviewed the claims carefully and is believed to correct all of the deficiencies identified by the Examiner.

Claims 31-34 were rejected as either anticipated by Negro 3,688,809 or rejected as being unpatentable over Negro in view of Pfaffle 4,249,278 which was cited for the use of plastic material.

Negro teaches the use of "a wire, a plastic-coated wire, or a thread of synthetic material" (col. 4, lines 32-35) to thread a helix into a stack of sheets. There is no teaching or suggestion for the use of heat in the process so that Negro is obviously not dealing with materials that require heating and cooling, as in the present invention.

In Pfaffle, a plastic thread is softened as it moves around a mandrel 24 which is located inside a housing 13 which has two sections. The plastic wire 33 is fed into the first section of the housing onto the mandrel where the wire is heated as it winds around the mandrel while in a groove 32. There is no heating mechanism described and the specification indicates that the "thread is softened as it moves around a mandrel" and cooled in a second section (see Abstract). Apparently, the thread warms up while on the mandrel. Cooling takes place within the second section of the housing, so no ambient air in contact with the thread on a transfer mechanism is involved as in the present invention. Applicant traverses the Examiner's conjecture friction causes heat, since it is heated at a high temperature, such as 190 degrees F.

In the present invention, the plastic thread is heated prior to mounting on the mandrel, formed as spiral shaped filament on the mandrel while being fanned to begin the cooling process to halt the spiral shape of the coil, which is then cut into discrete plastic binding coil segments and then placed on a transfer mechanism for ambient air cooling on the way to the binding machine, features not taught or suggested in any of the applied references. It is noted that cooling via ambient air is believed to be more efficient and reliable, as well as less costly than a powered Vortec device, such as internally operable within the Pfaffle machine.

Moreover, Applicant's in-line system of a forming machine connected to a coil insertion machine by a transfer mechanism is a modular system, as opposed to an integral machine such as Pfaffle's, meaning that either machine (forming or binding) can be used offline independent of the other, or can alternatively be used in combination.

Claims 31 has been extensively amended to incorporate the novel features of this invention as described above, and the depending claims have been amended to provide consistency in the language while adding more details of the present invention. For example, the preamble of independent Claim 31 has been amended in the preamble to refer to "a typical coil forming machine".

Support for the term "a typical coil forming machine" is found in Applicant's specification paragraph 0133 which states as follows:

*"[0133] For example, a typical forming machine 510 takes plastic thread 505 from spool 501, preheats it in chamber 511 and then winds it on a mandrel 512 where it emerges in free air as a hot spiral coil 513. It passes through a guillotine cutter 514 which cuts it to size."*

Therefore the term "typical forming machine" is not new matter.

Additionally, a "typical forming machine" is disclosed in the US Patent 6,382,590 of Desjarlais, which is already of record in Applicant's related parent patent application (see second page of references cited in US Patent 6,726,426 of Spiel.). Desjarlais '590 includes an internal fan 71 in Figure 2 therein, which is described as follows:

*"The cooling effect is provided by a fan 71 which blows air onto the support plate thereby cooling the material. A discharge end 73 of the shaft past the helical guide coil has a diameter which is less than that of the shaft at the helical guide coil so that the coiled material can be released from the shaft to be cut."*

Claim 31 has also been amended to recite that each plastic coil segment is formed from a filament in the coil forming machine, which is cut away to form each segment in discrete lengths. Claim 31 also recites that the plastic binding coil segments are transferred through ambient air to the binding machine at such a rate that the segments are cooled further by the ambient air to a temperature substantially that of room temperature, before being inserted into pages of a book to be bound.

It is believed that the claims in their present form clearly distinguish over the applied references and should be allowed.

The Examiner is requested to call the undersigned in the event that any changes are required to obtain allowance of the application.

Respectfully submitted,

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Dated: Monday, March 31, 2008

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Date: Monday, March 31, 2008

  
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